**Attachment to S.S. Hecker Written Statement to**
**Senate Committee on Energy and Natural Resources Hearing on**
**"Governance of the Department of Energy Laboratories," June 24, 2003**

# Nuclear Weapons Stewardship in the Post-Cold War Era: Governance and Contractual Relationships

**S. S. Hecker**
**Director, Los Alamos National Laboratory**
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## The GOCO (government-owned, contractor-operated) partnership for nuclear weapons development.

The development, construction, and life-cycle support of the nuclear weapons required during the Cold War were *inherently governmental functions*. [1] However, the government realized that it could not enlist the necessary talent to do the job with its own civil-service employees. Instead, it enlisted contractors to perform the government's work on government land, in government facilities, using the specialized procurement vehicle of an M&O (management and operations) contract.

The government does not normally contract out inherently governmental functions such as managing the armed services, conducting international relations, or the printing of money. But when it does, there is sufficient authority (notably the Atomic Energy Act in the case of nuclear weapons) to tailor the resulting contracts in a way that addresses the special concerns of both the government and the contractor. The government used the M&O contracting vehicle to develop the GOCO partnership for atomic energy activities.

*The GOCO partnership was deliberate, innovative and successful*. Not only did the weapons laboratories provide the cradle-to-grave care of the nuclear weapons that helped end World War II and deter the Soviet Union during the Cold War, but they also managed to remain world-class research institutions for over 50 years. The GOCO concept was designed as a partnership to steer between the alternatives of a completely Federal operation and a procurement-oriented, contract operation.

Specifically, for the nuclear weapons laboratories the contractor was chosen to bring to the job scientific and management talents that typically do not exist in the federal government. Furthermore, the contractor was not to be saddled with all federal rules and regulations governing procurement, personnel policies, etc., in order to be quicker, more flexible, and more effective than the government itself.

Under the GOCO partnership, the government defines general policy and programmatic goals. The contractor is responsible for performing the research programs in a technically-sound, cost-effective and safe manner. In simple terms, the government decides what's to be done, and the contractor decides how and by whom.

*The nuclear weapons program required the following characteristics:*

- Long-term commitment, but limited access (the government did not want dozens of institutions involved in the design and development of nuclear weapons).
- Technical excellence and innovation in a highly-classified environment.
- Ability to cope with potentially enormous risks and hazards.
- Unwavering technical integrity.
- Unique, expensive facilities.

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[1] "Inherently governmental function" means, as a matter of policy, a function that is so intimately related to the public interest as to mandate performance by government employees. This definition is a policy determination, not a legal determination. An inherently governmental function includes activities that require either the exercise of discretion in applying government authority, or the making of value judgments in making decisions for the government. (Quoted from the Federal Acquisition Regulations [FAR], Part 7.5).

- Cost-effective, safe, and environmentally responsible operations.

These requirements were met by appealing to organizations such as the University of California and AT&T Bell Labs (two of the most respected and innovative research institutions in the world) to join the government in a public-service partnership.

The *sine qua non* of the University of California's agreement to serve the nation was "no gain, no loss." The government's interest in accomplishing high-risk research at minimum cost was served by the University's commitment to public service with no profit or fee. The University's concern with financial risks and liabilities was alleviated by the government's commitment to broad indemnification. The laboratories performed large-scale, complex research and development activities that were essential to the mission, but by their very nature carried great inherent risks. The only reasonable condition under which the University could serve was with Federal indemnification. The University's service was rendered solely for the advancement of the national interest, without personal or institutional gain.

Under this arrangement, the University did the work, and the government covered the cost and took the risks. While the government's indemnification of the University was never absolute, the basic approach was that the government would bear the risks to essentially the same extent as if the government were performing the work itself.

**The GOCO concept in the post-Cold War era - the need for an innovative partnership remains.**

The current nuclear weapons mission is as crucial as it was in the past. Stockpile stewardship and management, without nuclear testing and without fielding weapons of new design, requires a greater emphasis on science (thus, science-based stockpile stewardship), as well as greater involvement of the laboratories in nuclear weapons surveillance and remanufacturing activities. These activities potentially expose the University to greater risks than before; risks it cannot bear on its own.

The annual certification of the safety and reliability of nuclear weapons by the laboratory directors can only be done with the directors acting on behalf of the government - under the type of partnership and indemnification offered by the GOCO relationship. In addition, the broader mission of "reducing the global nuclear danger" requires just as strong a dedication to the principles of a GOCO partnership. For example, the University's role in working with the Russian nuclear institutes to help them protect their nuclear materials requires the same dedication to public service and also requires special indemnification by the Federal government because of the risks inherent in working with foreign governments and on foreign soil.

**The changing regulatory environment and increased accountability to the public.**

During the last decade of the 50-plus year lifetime of GOCO partnerships, the special nature of the contractual relationship has eroded significantly. The Galvin Task Force report *Alternative Futures for the Department of Energy Laboratories* issued in February, 1995, lamented the fact that this relationship had essentially deteriorated to the point where the laboratories look more like GOGO (government-owned, government-operated) institutions. The report states on p. A-1 that "wherever we turn we see evidence of nothing but a government owned and more government operated system." The report pointed out that both DOE and Congress must shoulder the responsibility for this erosion.

Part of this change was driven by public reaction to highly publicized excesses and profiteering in contracts between the Federal government and private contractors - most notably in the Department of Defense. The public now holds the government more accountable than at any time in the past. Contractors acting on behalf of the government, by extension, face greater pressures for accountability than before. In the late 1980s, the DOE was under particularly intense pressure because of safety and environmental concerns associated with its nuclear weapons and materials production plants. This followed a court

decision that required the DOE to place all its facilities under Federal, state, and local regulations (in contrast to being self-regulated as the Department was until ~1984).

Driven by intense Congressional pressure, Federal agencies stepped up their policing and auditing roles dramatically in the 1980s and early 1990s. The DOE significantly increased oversight of its production plants and laboratories in the early 1990s. The DOE Tiger Team inspections were symptomatic of the change - attention focused on regulatory compliance that was mostly process and paperwork oriented instead of outcome driven. These changes led to a great proliferation of DOE people in the audit chain, with a resultant loss of productivity and effectiveness at the laboratories.

The Galvin Task Force observed (p. A-1) "…the Department is driven both to honor the prescriptions from Congress and to overprescribe in order not to be at risk of failing to be super attentive to the Congress's intentions. The net effect is that thousands of people are engaged on the government payroll to oversee and prescribe tens of thousands of how-to functions. The laboratories must staff up or reallocate the resources of its people to be responsive to such a myriad of directives; more and more of the science intended resources are having to be redirected to the phenomenon of accountability versus producing science and technology benefits." Moreover, the Task Force pointed out that the practice of overregulating has impacted the morale at the laboratories very negatively.

Consequently, much of the trust that formed the basis of the GOCO relationship between the DOE and the contractor has been lost. In essence, many of the Department's personnel were pressured to provide more oversight; oversight of its own regulations as well as those of other governmental agencies. Consequently, the Department's relationship with the laboratories changed from one of owner/operator to policeman/operator. The relationship changed from one of partnership to one more akin to an arms-length government procurement.

**Contract reform and the Mega-Rule exacerbate the deterioration.**

During the past four years the Department has accelerated the move away from GOCO principles in its contracting practices through key aspects of its contract reform initiative. In its contract reform report (*Making Contracting Work Better and Cost Less, Feb. 1994)* and in the report of its Privatization Working Group *(Harnessing the Market: The Opportunities and Challenges of Privatization, Jan. 1997),* the Department responds to criticism from a variety of Inspector General reports on DOE contracting practices and attempts to answer criticism of its environmental management contracts by shifting its contracting practices toward more conventional government contracts and toward privatizing wherever possible.

Such changes may well be appropriate for some DOE operations, but, unfortunately, very profound changes are also being made to M&O contracts that are the basis for the special GOCO partnership arrangements. For example, the Department increasingly is shifting as much risk as possible associated with operations at the laboratories and plants to the contractors. The Department continues to explore a variety of mechanisms to "financially incentivize" its M&O contractors, through profits or incentive fees, to bear more of the risks of operations and to enhance the contractor's performance. However, at the same time, as pointed out in the Galvin report, the Department has intensified its oversight to the point where it looks and feels more like the government is actually managing the operations itself.

Such changes to M&O contracting practices at the DOE laboratories will have the end effect of driving out the world-class, not-for-profit contractors because these changes fundamentally undermine the *no-gain, no-loss* principle. In effect, these contractors are being driven to exchange their public-service motives for profit motives. However, these not-for-profit institutions typically exist for the purpose of education, research, public service, or governmental work. They cannot put at risk the resources of their parent institutions. Historically, in the nuclear weapons enterprise, the government has provided statutory protection for most nuclear risks through the Price-Anderson Act and other special

risks through P.L. 85-804. The Department also provided special contractual protection for most of the remaining risks associated with operations of the GOCO laboratories.

While this protection was broad, it was never absolute. For example M&O contractors have always been responsible for losses incurred as a result of actions taken in bad faith by their own officers and top managers. They are also legally liable for contract cost overruns. Even for-profit M&O contractors struggle with the trade-off between potential profits and liabilities. As DOE proceeds to shift more of the risks to contractors, it will be very difficult for DOE to attract the services of top private-sector research organizations as contractors of its nuclear enterprise.

There appear to be two fundamental flaws in the Department's contract reform thinking as applied to M&O contractors. First, there appears to be a perception that the end of the Cold War somehow changed the nature of the work; that is, that the work became less difficult, less risky, less important, and less an *inherently governmental function.* While the end of the Cold War may, indeed, have made it possible to relax the nation's strategic defense posture, the stewardship and management of the nuclear stockpile remain just as important as before.

Second, in the Department's drive to privatize and incentivize, it is intermingling its approaches for managing the risks of its operations and for incentivizing the performance of its contractors. Enhancing and rewarding performance involves measurement and appraisal using metrics based on customer feedback and other modern principles of quality management. Dealing with risks requires risk management approaches based on relevant principles extracted from the fields of insurance, law, and the actuarial profession.

Under the rubric of contract reform, the Department is searching for contractual vehicles that "financially incentivize" its M&O contractors in return for bearing more of the risks of operations. Yet, there are no financial incentives strong enough to make a laboratory director sign the annual nuclear weapons certification that goes to the President (via the Secretaries of Defense and Energy). To sign the letter that states: *"I certify the nuclear weapons in the stockpile that our laboratory has designed to be safe and reliable, without nuclear testing at this time,"* the directors should not be motivated by personal salaries, corporate fees or corporate profits. The directors can do this job responsibly only by acting as an extension of the Department - as "public servants." It is the very nature of the GOCO partnership that allows the directors to do so.

The June 24, 1996, DOE Notice of Proposed Rulemaking (the so-called Mega-Rule) exacerbates the problem. The overall objective - taking the myriad of DOE regulations, orders and instructions, and changing them into a smaller number of rules - is well intentioned. However, too many of the current regulations, orders and instructions are process oriented instead of outcome oriented. Turning these into rules with the force of law will make it very difficult to effect modern quality management tools to improve contractors' operations and productivity in the future. We also find that some of the proposed rules would hold M&O contractors more accountable for various losses and liabilities than even the simplest cost-type contractors selling products or services to the government. For example, the cost of commercial liability insurance, which is recognized as an ordinary cost of doing business in all other government contracts, could become questionable under the new rules proposed for M&O contractors.

I believe that if the Department continues to implement current plans for contract reform and the Mega-Rule for its GOCO contractors, it will lose the talents required to ensure the safety and reliability of the stockpile and threaten the underpinnings of nuclear deterrence for the future.

**Let's revitalize the GOCO partnership for nuclear weapons stewardship.**

I believe that the Department should examine its principal functions (or business units). These functions may be grouped into four: 1) National security (in the spirit of reducing the global nuclear danger), 2) Energy research (providing the scientific underpinnings), 3) Energy security and technologies (and their interface with environmental

and economic considerations for a sustainable future), and 4) Cleanup of the nuclear weapons complex.

For each function, the Department should define which of the principal players in the nation's science and technology community (industry, universities, and the DOE laboratories) can best carry out that function. Then, the Department should decide what governance or contractual vehicle is most effective in accomplishing that function. For example, Assistant Secretary for Defense Programs, Vic Reis, has stated very clearly that for successful stockpile stewardship he needs the three DOE defense laboratories functioning under a GOCO partnership with his office. Stockpile management requires both industrial contractors under an M&O contract and the GOCO laboratories.

On the other hand, Assistant Secretary for Environmental Management, Al Alm, has stated that much of the cleanup of the DOE complex can be best achieved through privatization using other novel contracting vehicles with private industry. The Office of Energy Research calls upon the DOE laboratories to perform R&D of interest to the government in a GOCO mode and engages universities in a peer-reviewed grant mode.

I believe the GOCO partnership is required for most things nuclear in the Department because of the inherently governmental nature of these missions - from nuclear weapons stewardship and management, to non-and counterproliferation, to dealing with much of the nuclear legacy (nuclear materials production residues, some of the nuclear waste problems, and plutonium disposition, for example). For these DOE functions it is crucial for the Department to renew its commitment to GOCO partnerships. It is imperative that it restore trust between the M&O contractors and the Department. To assure the public that operations at its GOCO facilities are run safely, environmentally responsibly and cost-effectively, it should follow the motto *trust, but verify.*

Much as former Energy Secretary Donald Hodel restated the importance of the M&O contractual instrument for DOE's major research, production and weapons facilities in Oct. 1983 (a copy of his memorandum is attached), Secretary Peña could update and restate those principles to accomplish the Department's inherently governmental functions. In renewing the GOCO partnerships, the Department should strive to separate its approaches to *managing the risks* at its facilities and to *enhancing performance* of its contractors.

*Managing the risks.* In a GOCO partnership, the M&O contractor conducts the government's work on government land, in government facilities with extensive government oversight. Much of the work in the nuclear weapons enterprise is inherently risky. The broad statutory and contractual protection historically afforded the not-for-profit contractors is essential. This type of protection against liabilities associated with inherently governmental functions is very similar to that afforded to government-operated laboratories and their employees. Incentivizing contractors to bear greater risks in return for potential profits or award fees is ineffective for not-for-profit contractors.

Strong incentives exist today for contractors to conduct the government's work in good faith since indemnification is not absolute; contractors are liable for "bad faith" actions by their officials, and for costs that are not allowable under their contracts. The not-for-profit contractors for DOE laboratories have enjoyed an excellent record of very little history of such actions over the 50-plus-year history of GOCO partnerships. This record is a strong testament to the integrity of the contractors and soundness of the GOCO concept.

There is also a very strong incentive for the contractors to avoid those fines, penalties and judgments borne in the operation of the laboratories that are indemnified by the government; namely, all such costs come directly from the operating funds of the laboratories. The government does not pay such costs separately, nor does it make available to the contractors the separate judgment fund that is accessible to its federal agencies. The laboratories, therefore try to avoid all such fines, penalties and judgments because they directly reduce the availability of programmatic funds for R&D.

I also believe that it is most cost-effective for the government to provide indemnification to cover such costs (in the manner described above) only as required. Hence,

if no loss occurs, no funds are diverted from their intended programmatic purpose. I believe that broad indemnification is a prerequisite for an effective GOCO partnership; one in which the laboratory directors are encouraged by their contractors to do what's in the best interest of the nation. I cannot envision signing the annual nuclear weapons certification letter under any other arrangement.

*Enhancing the performance of M&O contractors.* Nuclear weapons stewardship and management require that the government continue to attract and retain the best possible talent by enlisting the finest research institutions in the nation to manage the laboratories and the best manufacturing companies to run the plants. As trustee, on behalf of the U.S. public, the DOE must also demonstrate that these operations are conducted in a cost-effective manner. However, as pointed out in the Galvin report, productivity in the entire DOE system is not at a level commensurate with best private industrial practice in the United States. The report indicated that productivity at the DOE laboratories could be enhanced by 20 to 50 percent. The Galvin Task Force concluded that the system of governance was broken, having veered significantly from its original GOCO practices. The Department's focus had shifted from providing overall policy guidance and program direction to excessive oversight and micromanagement of the contractors' operations.

We applaud the Department's recent move to performance-based contracting principles. However, "performance" is still too often defined in terms of process, not outcomes. It requires many Federal employees to audit the thousands of processes. It would require far fewer to measure results. We applaud the Department's recent move to Integrated Safety Management. It provides some hope that years of compliance-dominated dictates will be replaced by performance-based safety practices that are an integral part of the work process itself. Yet, the oversight interface and the confusing multiple reporting lines within the Department are still seriously broken (as documented in the recent IDA report *"The Organization and Management of the Nuclear Weapons Program, March 1997*). We also applaud reforms in procurement practices allowing the Department's contractors to move away from the federal norm and closer to best-business practices of the private sector.

However, much more remains to be done. In fact, in some areas the Department is moving in the wrong direction. Many of its current initiatives driven by contract reform and rulemaking will bring us much closer to an arms-length relationship between the Department and its M&O contractors. Instead, I believe that the GOCO principles must be firmly restated by the Secretary and practiced by the Department. Much of the current inefficiency in the DOE system is caused by the government acting as the de-facto operator, complete with federal norms and federal bureaucracy. If the Department and M&O contractors once again worked together in the spirit of a GOCO partnership, the contractors could much more readily adopt the quality and productivity initiatives that have revolutionized business practices in the private sector. The M&O contracts for GOCO partnerships must be performance-based. (The current University of California contract is an experiment in such performance-based M&O contracting).

The appropriate role for the Department, as owner and trustee on behalf of the U.S. public, is to set expectations and verify performance. The Department then insists that the contractors use performance measures, metrics and quality programs (adapted from the best in the private sector) to drive improvements, rather than rely on extensive oversight and audits to ensure compliance with processes imposed by restrictive and bureaucratic Departmental rules, regulations and guidance. Many U.S. companies have become models for efficient, productive operations while concurrently becoming models for workplace safety and environmental responsibility. The incentives for them are nothing less than staying in business in a cut-throat global marketplace. In other words, they must be productive to stay in business; and, they must operate safely and environmentally responsibly to be productive (and keep their doors open).

Trust and partnering must be reestablished between the Department and its M&O contractors to allow best business practices to be adopted since such practices do not involve

extensive oversight and auditing of individual processes, but rather focus on outcomes. Partnering is also necessary because adopting best business practices to increase productivity typically requires significant restructuring of the workforce. Under current policies, Congress and the Department have made it difficult for contractors to tailor their workforce for maximum productivity. The bottom line is that adopting best business practices requires significant flexibility on the part of the contractors. The Department has the requisite authority to provide the necessary flexibility to its M&O contractors.

A key question that arises is how does the government *incentivize* its M&O contractors to achieve best performance, not only in R&D, but in operating the DOE facilities in a world-class manner? Proper incentives must seek out those things held most dearly by contractors. Clearly, for-profit contractors strive to make a profit. (Although during the early days of the Atomic Energy Commission, the President of the United States appealed to AT&T to provide a public service by running Sandia National Laboratories. AT&T did so for no profit, no loss with the benefit of a Presidential indemnification. Changes in its own business environment and in the DOE contracting environment, coupled with the loss of the Presidential indemnification, caused AT&T to terminate this special relationship with the DOE after 40-plus years).

Effective incentives are much more difficult to devise for the not-for-profit contractors who manage M&O contracts. What typically matters to these contractors are public service, pride, stature, and reputation. The laboratories, managed by these contractors, also really care about their stature, reputation, and their ability to stay at the forefront of research, which includes having some flexibility in determining research directions.

On the basis of these observations, I believe the following incentives for not-for-profit M&O contractors are the most effective:

1) Repeat business. Repeat business, namely continued R&D funding, is crucial to the laboratories. It should be tied directly to results. If performance expectations are clearly spelled out by the Department, then it should be easy to reward exceptional performance and punish poor performance.

2) Publicly visible performance assessments and ratings. Making performance assessments and ratings part of the public record is a very effective incentive for the laboratories because they directly affect their stature and reputation, which, in turn, also affect repeat business.

3) Low overhead rates. The laboratories have a strong incentive to increase their productivity and keep overhead rates low because that allows them to do more R&D for every programmatic dollar. In addition, it also makes the laboratories more competitive, which, in turn, enhances repeat business.

A key aspect of contract management for the Department is how to ensure a safe and environmentally responsible workplace at its facilities. Can the above incentives ensure this? I believe that one could, once again, turn to private-sector experience. First, Federal, state and local governments provide oversight to ensure compliance with health, safety and environmental laws and regulations. Second, the best private companies have found that safety and environmental responsibility are an integral part of quality operations. That is, the best safety and environmental practices eventually cut costs and increase productivity.

I applaud the Department's decision to move to external oversight. The laboratories will then mirror the private sector in the compliance arena. This, I believe, will free up the Department to function as owner/trustee instead of policeman, allowing it to work hand-in-hand with the contractors to ensure that the right investments are made in infrastructure and maintenance. Instead of the Department overseeing thousands of processes in the workplace, it can compare the contractor's results from quality and productivity programs to the best in class in industry.

What about financial incentives? I view incentive fees as being counterproductive for both laboratories and government. Since the fees are assessed against the programmatic funds of the laboratories, they increase overhead rates and do not produce any R&D for the government. Exceptional performance by the laboratory results in a higher award fee for the contractor, which, in turn, raises overhead and results in less money for R&D. Conversely,

poor performance yields a lower fee, which, in turn, leaves more money for R&D. This is just the opposite of the way it should be. The Department has tried a somewhat different approach with the University of California, in which a portion of the fee is returned to the laboratories as a reward for not incurring unallowable costs. Any returned funds are used to conduct research of their choice, but still for the benefit of the government. This approach at least avoids the paradox of a straight incentive fee.

What about incentivizing individuals? I believe that this is best left to the discretion of the contractor. Financial incentives work very differently for for-profit than for not-for-profit contractors. Since the Department is asking the contractor to manage its facilities, it should allow the contractor to use best business practices for managing its human resources as well.

As a final note, in his personal comments on the Task Force report, Mr. Galvin said he believed the government will not restore operations according to GOCO principles under the current regulatory and management climate. He called for a greater separation of the government and the laboratories by corporatizing the contractual relationship. I believe that Mr. Galvin's proposal remains a viable option for the future. However, since the government has taken no actions in that direction, I believe that revitalizing the GOCO partnership is a more likely choice.

**Summary.**

The Department should define which of its missions consist of inherently governmental functions which require M&O contracting and GOCO partnerships. Secretary Peña should then restate the importance of GOCO principles for those operations and commit to a performance-based contracting approach to encourage the contractors to use best private-sector quality, productivity and operations practices wherever possible. The Department can hold the contractor accountable for results principally by affecting repeat business or by dismissing the contractor for poor performance. This approach will require a drastic change of course for the Department's contract reform and rulemaking as they apply to M&O contractors. Such a move will also help to align the efforts of the program secretarial officers with the practices of the contracting and support functions in the Department to improve the overall effectiveness of the Department in performing its missions. (The IDA report cited above found that such misalignment led to a loss of management effectiveness in DOE/Defense Programs).

Restoring trust between the Department and its M&O contractors is crucial. The Department must return to its proper role of owner/trustee and insist that the contractor manage to the Department's expectations in terms of outcomes. Such a change will benefit from the Department's move toward external ES&H regulation. The Department should consider expediting this move. Re-establishing the owner/contractor relationship is key to maintaining world-class science, to achieving the best productivity, and to becoming models for safety and environmental responsibility. In addition to the oversight needed for *trust, but verify*, the owner must help in making sure the resources are available for proper maintenance of the site, for modernizing the infrastructure, and, generally, for making the key investments for the future.

With a fully functioning GOCO partnership the need for the number of federal employees overseeing the relationship will be decreased substantially, and those jobs remaining will be much more rewarding. Concurrently, the GOCO laboratories will be able to effect substantial overhead reductions. The result will be much better performance at a lower cost.

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Comparison of GOCO and Contractor Operations

The GOCO Partnership Embodies an Excellent Customer-Contractor Relationship
S. S. Hecker
Los Alamos National Laboratory

| ATTRIBUTE | CONTRACTOR | NUCLEAR WEAPONS GOCO |
|---|---|---|
| Motives | Profit | Public service |
| Mutuality | Procurement-oriented | Partnership, cooperation |
| Risk-taking | Shy away from tough problems due to risks and expense | Confidence to tackle tough problems because of full backing from the government |
| Strategic Outlook | Short-term | Long-term |
| Integrity | Limited to contract requirements and business ethics | Derived from professional pride in accomplishments |
| Loyalty | To company | To sponsoring agency and nation |
| Risk | Reluctant to risk assets | Government indemnification (except for bad faith and criminal acts by officers and top managers) |
| Independence | Company interests come first | Free to exercise objectivity and professional freedom |
| Responsiveness | Limited by contract | Responsive to sponsoring agency directly |
| Goals | Maximum profit | Outstanding service and science in nation's interest |
| Accountability | Linked to profit | Linked to professional values and public service |
| Flexibility | Constrained by rigid contracts | Quick response to changing national priorities |
| Incentives | Profit | Public service, national reputation |